much here about the internal FCC processes, and one month, one direction or another, strikes me as what we've been looking at internally is that the big costs are not going to be for -- spectrum big costs are going to be investing in infrastructure.

The big question of timing are going to be how fast the companies can attract capital, how fast the companies can deploy networks, how fast companies can clear incumbents, and many of those issues -- on many of those issues, the industries are moving forward quite quickly.

Ralph, do you want to say anything?

MR. HALLER: Yes. I'll just conclude this session. I would also offer that, in the course of the discussions up here, I would urge you not to draw any -- any real conclusions as to anything as far as delay, or anything like that.

We've often asked questions or to draw out people's detailed views. As I started out this session, it is the intent of this task force, and I -- we've also heard from the commissioners, it is our intent to move forward as expeditiously as possible.

I don't think there is anything we're going to do, as far as the delay in auction and licencing process. We are with our goal of moving forward, and getting PCS out there and competitively absolutely quickly as we possibly can.

With that, I will remind you, we reconvene at 1:00, and we have a full afternoon, so we'll see you back here at 1:00.

(Thereupon, at 12:00 o'clock, p.m., a lunch recess was taken.)

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MR. HALLER: I recognize that an hour was a short time for lunch, but we have a considerable amount of ground to cover this afternoon so we want to get started right away.

For those of you that looked at the schedule and said four hours is an awfully long time without a break, we actually will be probably breaking somewhere between 2:30 and 2:45 and then resuming the second panel this afternoon at 3:00.

So there will be a little break in there. It is not quite as bad as you might have thought it would be.

I can see our panelists are -- okay. This afternoon our first panel will deal with the economic issues associated with PCS, and then the second panel this afternoon will look at financial perspectives on PCS.

The first panel will be moderated -- or actually your program is incorrect. Dr. Pepper will also moderate the first panel this afternoon. Bob?

MR. PEPPER: Thank you. There has been

one other change. There has been one additional change. Unfortunately because of a death of a very close friend, Tom Hasewood (phonetic) is not able to join us this afternoon.

So we have a very distinguished panel of three instead of a very distinguished panel of four economists.

Dan Kelley, who had been at the Commission and then MCI is now with Hatfield Associates.

Stan Besen who has been with the Commission and then with Rann Corporation (phonetic), and is now with Charles River Associates.

And Jerry Hausman who is with MIT.

We are going to have a slightly different format for the first panel this afternoon. We are going to dispense with the opening five-minute presentation and begin to get right into answering questions.

But each of the panelists was asked to address four questions. And what we would like to

And that is decided to hold an auction so that the market is going to get to decide this rather than by administrative fiat, or as I sometimes refer to past FCC actions, by the great handicapper general in the sky who should decide what the rules are.

So to the greatest extent possible I certainly hope that the minimal amount of screwing around with the market via the auction will need to take place and that the market and bidding process will determine the market structure.

In terms of the particular questions, the first was the number of the competitors. I said -- or I believe that the absolute number of competitors is not of great importance so long as the market structure does not permit the exercise of market power.

Either unilaterally by a single firm withholding output or by a coordinated interaction among firms.

So what I mean by this is this morning the question was asked should the Commission be worried about aggregation, you know, should we be

worried about absolutely getting it right the first time.

And to my way of thinking, it is unlikely that anyone has enough knowledge to get it right the first time. But so long as aggregation within the limits of making sure that market power is not exercised can take place, then the market should be allowed to sort it out.

So I guess it is my view that the Commission should not be sitting back and saying how many competitors should we be aiming for at the end of the process, but instead -- I put forward the plan before that I believe that starting off with six 20s megahertz would allow this type of aggregation to take place.

I think a more important factor than the number of competitors gets to the second point though in Professor Katz' question, and that is what are the cost drivers of the market structure.

I think the important factor here is you want to make sure that firms can participate who will potentially have a low cost basis to provide

PCS because so long as you have competition, low costs are going to lead to low prices which benefit consumers and leads to greater output.

So in particular the OPP of Dr. Pepper's, Mr. Ried (phonetic) put out a report about a year and a half ago and was talking about economies of scope and identified the identified the cable companies, the LEX, and the cellular companies all as having important economies of scope.

I agree with him. And to the extent that that will give them a lower cost basis we certainly want to do everything we can to make sure they participate because they'll have lower costs and that will lead to lower prices.

So therefore I sometimes have heard it said that in fact those people have too much of a disadvantage, and somehow they need to be handicapped or it won't be fair for the new participants.

I just agree -- I disagree by a hundred and eighty degrees. I couldn't disagree more. What you want is to allow everybody to come in,

advantages, no advantages, and whatever. And so long as you have competition people with lower costs should be able to offer lower price services.

From what we heard this morning, there is a fairly high demand elasticity that comes out of the survey. This will be especially important then for building up PCS demand and making it a successful group of services.

Then the last thing that Professor Katz asked was about demand side factors. And this is -- the other factor of course besides cost you should take account of is this old saying by George Bernard Shaw that you can teach a parrot to be an economist by teaching it to say supply and demand.

So I have just done the supply or the cost factors. Now I'm going to move onto the demand factors which is the last part of the question.

Here I think that what we want to do again is to make sure that firms can participate which can offer differentiated services which

consumers will value.

There was some talk this morning about so-called niche offerings. And to an economist I take that to mean differentiated product offerings.

The reason that economists are in favor of this type of activity is that new or different types of services will lead to an outward shift of the demand curve and this will also lead to greater benefit to consumers and greater output.

So I really see the cost drivers and the demand side factors to be much more important than the -- not the absolute number of competitors.

What we want is to be able to have people who -- excuse me -- companies that come in who will be able to offer low cost, slash, low price services and also have companies that can offer differentiated products which consumers may value and consumers may not be being offered them given current technology.

MR. PEPPER: Thank you. Stan.

MR. BESEN: Let me say at the outset that

I think the most important thing that will come out of this proceeding almost no matter what decisions -- almost without regard to the particulars of the decision the Commission ultimately takes is that there will be a significant change in the structure of the mobile telecommunication market in the next few years.

The change is partly the result of technological change, partly the result of regulatory developments.

But the entry of the SMR and probably most importantly the entry of some number of competitors as a result of this proceeding are going to change the structure of this industry markedly and presumably forever.

I agree with Jerry that the Commission has done one very important thing here, the adoption of the auction mechanism for allocating licenses to begin with which is certainly a step in the right direction, an important change that economists as you know have been advocating for many years.

I think it is an equally important aspect of this proceeding that the Commission has done that should not go unrecognized, and that is the broad way in which PCS services have been defined as a critically important aspect of the Commission's decision.

Whereas in the past the spectrum allocation plans would have defined the services that licensees could offer with great particularly and leading to considerable difficulties or barriers to reallocations in the face of changes in technology or demands.

The Commission has allowed the licensees under this -- in this proceeding to offer in the end whatever services turn out to be least costly to provide or most desired by consumers. That is an incredibly important improvement in what the -- over past Commission spectrum allocation policies.

Now, this flexibility in use is I think is as I said critically important, but it has a sort of corollary proposition which is that because there is going to be considerable flexibility in

the way spectrum is going to be used and because these services are not well-defined, no one including the Commission can know with any particularity precisely -- the precise market structure and the precise identity of the firms that are likely to be best able to serve consumer needs.

As a consequence within, I would argue, a very, very wide parameters transfers of spectrum, combinations, and something that wasn't really talked about this morning, subdivisions of spectrum ought to be permitted and encouraged to the -- and limited only to the extent that they raise issues of anti-competitive concerns.

And I would argue -- and we have presented evidence and calculations in this proceeding that make the point the parameters are in fact quite wide, and that any of a wide variety of market structures is consist with a relatively un-concentrated market for personal communications services. And this would be true even if one takes into account just PCS. And the argument is further

strengthened by the entry of the SMR.

Now, the question -- the issue over what should the Commission do under these circumstances, what sort of market structure should it try to promote. It is tempting to say that it ought to maximize the number of firms that provide the services. And some people from time to time come close to saying that.

I think that would be an incorrect position to pursue because there are going to be economies of scale or scope of the kind that Jerry has already eluded to, and simply because some firms just turn out to be better than others at providing services, and therefore may end up with growing shares of the market.

Those kinds of market structures that in fact involve more than the largest possible -- excuse me -- end up with fewer than the largest possible number of firms, those market structures should not be discouraged unless in fact they lead to concentration that leads to concerns about competition.

And I would argue that the range -- the parameters, the range of possibilities within which the Commission can operate is really quite large.

Let me just stop here.

MR. KELLEY: I'm going to start first by discussing the question and then try to talk about answering the question a little bit.

What market structure will promote investment, innovation, and efficient pricing? And my first point is is that is exactly -- that investment, innovation, and efficient pricing are the goals the Commission should adopt, so we are asking the right question here.

My basic answer to that is that a market structure that is as competitive as possible given engineering costs and demand factors is the one that is going to maximize those goals of investment, innovation, and efficient pricing.

But prior to that, I think the key question for the Commission -- and I was very pleased with the discussion this morning -- the key question -- the key point here is you can't have

any investment, innovation, or pricing efficient or otherwise unless the spectrum gets out in the market and people start using it.

So I was very pleased with the discourse this morning which indicated that the reason we are meeting for today is to accelerate this process because it is a way to sort out the issues and the reconsiderations so we can move more quickly to get the spectrum allocated. And that is the number one goal that I see.

My second comment on the question is we are asking what market structure will promote investment, innovation, and efficient pricing. We have to talk about what kind of markets are we interested in. There isn't just one market to worry about.

It seems to me there are at least three kind of markets we ought to be worried about when we are making decisions about the structure of PCS.

There is the local telephone market. PCS has been discussed as an entry point into a market

that is 80, 90 billion dollars, that it might be the first point of entry into bringing some real competition to the local exchange market.

So we should be worried about that. We should be thinking about that when we were making these PCS allocations decisions.

The second kind of market we are worried about is -- let's call it the existing cellular mobile radio market which right now consists of the two cellular incumbents in each local market and ESMR on the horizon.

The third kind of market we are going to talk about, and we heard a little bit about this this morning is I guess what some people have referred to as PCS light. That the PCS spectrum might go to providers who want to give businesses wireless lands to have wireless tails behind PBXs or to suppliers who might want to provide something like mobile phone booths, CT two top applications which may not have the full power range of existing cellular and mobile radio applications.

Depending on which of those three you are

worried about you get a different answer as to what the right structure is, I think.

A fractured industry with lots of small competitors might promote competition within the PCS light arena which I talked about.

But it may be that you need a smaller number of larger competitors to allow PCS to be effective in meeting the goals of bring competition to the local telephone market or bringing competition to the existing cellular and mobile carrier. So there is a trade-off there.

I would say you are better off licensing a situation in which carriers can come in and be effective in the wireless loop market, if you want to call it a market, or be effective in cellular mobile from the beginning because so those carriers will also have the incentive given enough spectrum and given the band and given the cost characteristics and the technology to provide the other services that people are talking about as well.

Two final points, the nationwide

structure of the industry matters -- and I think we will probably get to this under Number 2 as well, but I think the Commission should be looking at trying to increase diversity within the nationwide structure of wireless market to bring new players in, to bring players that might have new approaches to the cellular business, new approaches to the wireless business.

Finally on the issue of economies of scale and scope which goes the questions that Dr. Katz asked, I agree with Dr. Hausman that cellular carriers may bring economies of scope to PCS. Cable companies may do that as well. The LECs may do that as well. Existing paging companies might do that. Long distance carriers might do that.

There are a lot of companies that can bring economies of scale. There are a lot of companies that can bring marketing expertise to PCS.

If you look at who is marketing PCS right now, it is not necessarily the cellular companies

directly, it is all the little guys who are selling the telephones out there.

I know in the cellular market in which I live you see very little advertising from the underlying carriers. And you see a lot of advertising for cellular from the guys who are selling the phones. So even those guys can bring some economies to the market if you will.

The key point I want to make is that cellular is already on the market. We heard that this morning. The cellular carriers have the capability to provide the services we are talking about PCS providing.

They are upgrading their networks. They are digitalizing. There is more capacity coming to them as they do that. So they are already in the market.

And those kinds of economies can -- are being and will be realized. So I'll stop there.

MR. KATZ: I would like to ask one question in the risk of making it sound like it is an oral exam.

And that is particularly with Stan and Jerry talking about relying on the market to get things right rather than the Commission trying to do that. And I want to ask the following question, and this is the part where it will sound like an oral exam: Is whether either of you or all three of you would be concerned about the Commission's potentially issuing too many licenses if -- and this is where I want to separate things out -- if you could just keep having more licenses of a given size?

Now, obviously as a practical matter if you have more licenses there is less spectrum per license. But since we are economists we can assume we have enough spectrum to deal with this problem.

Would you be concerned if somehow too many licenses were issued that that would lead to problems, or do you think that the market could sort that out? Certainly other people have raised those concerns.

MR. HAUSMAN: Well, I'll get to this next. I think if you started passing out at lot of

five megahertz licenses or perhaps even 10 megahertz licenses that could create a problem. Of course I'm on record as saying I think 20 megahertz is the place to go.

In that situation I don't think the Commission could pass out or allow it to be bid -- which is really the way to think about it -- too many licenses. Because of course we know that under free entry we get the best of all possible worlds unless you just have overwhelming economies of scale.

And nobody has argued, even tried to argue that this is a natural monopoly situation where we have overwhelming economies of scale.

So I think in that situation if there were no limitations on spectrum we would end up in free entry like 95 percent of the other industries are in the U.S.

And the whole problem I see here is that the FCC has only a certain amount of spectrum to be used. But, you know, within that frame work, I'm really not worried. The market will decide.

If a possible goal of the U.S. Government were to maximize the amount of money they got from the auction process then there would be different considerations. But it is my understanding that that was not one of the goals of Congress.

And so to the extent that you are not trying to maximize the amount from the auction, I don't think that you can make too many licenses available.

MR. BESEN: I'm not sure I understand. Were you asking the question given the amount of spectrum would it make -- would we care if there were too many licensees or would we just care in general whether too much spectrum was provided?

MR. KATZ: No, I'm asking you whether there is a such thing as having too many licenses. Suppose it turns out we could have as many 40 megahertz licenses as we wanted. Would you be in favor of restricting the number or say we should just have as many as people want to buy? Because arguments have been put forth saying it was a bad thing to issue too many independent of the spectrum

constraints.

MR. BESEN: If there were unlimited spectrum, why would you want to place a limitation on the number of licenses you could issue?

MR. KATZ: I didn't say I wanted to. I just said people have -- the issue has been raised in the context of saying that people would have trouble funding investments in the infrastructure they would need because somehow the capital markets would be unable to pick which ones would survive.

And I'm basically asking do any of you support that argument or reject it.

MR. BESEN: No, I wouldn't support it. I think that sometimes that argument has been posed in the context of a specific limited amount of spectrum. And I think the question then would be whether you could issue licenses that are so small that in fact it would create difficulty.

The answer is in that context you might, that is the difficulty would be of the sort that the market would spend a lot of resources sorting out the -- aggregating up from the excessively

small number of licenses.

We know if the transaction costs were nonexistent then we wouldn't care. Your errors would be overcome costly.

If there were costs of aggregating then one might care. And that is an argument I take it that was the sort of thrust of much of the morning's discussion which was you ought to try as best you can to get it right basically because there are costs of reallocations. You want to save those costs if you can. You want to not prevent certain transactions from being defeated because of the high costs of prearrangements.

But you have to -- but you can't do that. And inevitably you can't do that because of the lack of knowledge. And inevitably there will be subsequent reallocation. Do the best you can.

There certainly are licenses that are of a size that are probably so small that in fact they would not survive the competitive shake ups. And it seems to me those are the sort of considerations that ought to dictate the sort of the initial

allocations that the Commission comes up with, emphasizing they are initial allocations.

MR. KELLEY: I think the way I would approach this question are there competing uses for those extra 40 megahertz licenses you are giving out that in the real world might not have a chance of developing into actual competitors. And if that's a real concern than you might be worried about it.

The way I would solve that is to issue as many -- Stan's world of unlimited spectrum -- issue as many 40 megahertz licenses as you can and allow the people who end up owning that spectrum to do whatever they want with it. And then you don't have to worry about that alternative use for the existing spectrum.

MR. PEPPER: What about in the context of Stan's sort of second analysis which is not dealing with the world of unlimited spectrum but rather the world of limited spectrum, and therefore the degree to which you add more licenses if you don't add more spectrum you are cutting down on the amount of